

**SERIAL 03157 - RFP      AIR QUALITY STUDY-AGUA FRIA RIVER BASIN (NIGP 92615)**

**CONTRACT PERIOD THROUGH OCTOBER 31, 2005**

TO:                    All Departments

FROM:                Department of Materials Management

SUBJECT:            Contract for **AIR QUALITY STUDY-AGUA FRIA RIVER BASIN (NIGP 92615)**

Attached to this letter is published an effective purchasing contract for products and/or services to be supplied to Maricopa County activities as awarded by Maricopa County on **October 06, 2004**.

All purchases of products and/or services listed on the attached pages of this letter are to be obtained from the vendor holding the contract. Individuals are responsible to the vendor for purchases made outside of contracts. The contract period is indicated above.

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Wes Baysinger, Director  
Materials Management

WT/mm  
Attach

Copy to:            Clerk of the Board  
Warren Kusters, Environmental Services  
Sharon Tohtsoni, Materials Management



## **CONTRACT PURSUANT TO RFP AIR QUALITY STUDY-AGUA FRIA RIVER BASIN**

**SERIAL 03157-RFP**

This Contract is entered into this 6th day of October, 2004 by and between Maricopa County ("County"), a political subdivision of the State of Arizona, and WESTON SOLUTIONS, INC., a Pennsylvania corporation ("Contractor") for the purchase of an air quality study for the Agua Fria River Basin.

### **1.0 TERM**

- 1.1 This Contract is for a term of one (1) year, beginning on the 6th day of October, 2004 and ending the 31st day of October, 2005.

### **2.0 PAYMENT**

- 2.1 As consideration for performance of the duties described herein, County shall pay Contractor the sum stated in Final Pricing, attached hereto and incorporated herein as Exhibit "A." Payment shall be made as set forth in the RFP.
- 2.2 Payment under this Contract shall be made in the manner provided by law. Invoices shall be prepared and submitted in accordance with the instructions provided on the purchase order. Invoices shall contain the following information: purchase order number, item numbers, description of supplies and/or services, sizes quantities, unit prices, and extended totals and applicable sales/use tax. The County is not subject to excise tax.

### **3.0 DUTIES**

- 3.1 The Contractor shall perform all duties stated in the Agreed Scope of Work, attached hereto and incorporated herein as Exhibit "B."
- 3.2 Contractor shall perform services at the location(s) and time(s) stated in Exhibit "B," or in the purchase order requesting such services.
- 3.3 During the Contract term, County shall provide Contractor's personnel with adequate workspace for consultants and such other related facilities as may be required by Contractor to carry out its contractual obligations.

### **4.0 TERMS & CONDITIONS**

#### **4.1 INDEMNIFICATION AND INSURANCE:**

##### **4.1.1 Indemnification.**

To the fullest extent permitted by law, and to the extent of the Contractor's negligence, Contractor shall defend, indemnify, and hold harmless the County, its agents,

representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses, including but not limited to attorney fees and costs, stemming, or allegedly stemming, from the negligence or malfeasance of Contractor and/or its agents, employees and subcontractors, relating to this Contract.

Notwithstanding any other provision of the Contract, and unless a higher limit of liability is expressly provided elsewhere, Contractor's total liability to County for any loss or damage from claims arising out of or in connections with this Contract from any cause including breach of contract, tort or professional negligence, errors or omissions shall not exceed the lesser of the total contract price or the proceeds of Contractor's liability insurance. In no case shall either Party be liable to the other for special, indirect, incidental or consequential damages whether or not such damages were foreseeable at the time of the commencement of the work.

#### 4.1.2 **Abrogation of Arizona Revised Statutes Section 34-226:**

In the event that A.R.S. § 34-226 shall be repealed or held unconstitutional or otherwise invalid by a court of competent jurisdiction, then to the fullest extent permitted by law and to the extent of the **CONTRACTOR'S** negligence, **CONTRACTOR** shall defend, indemnify and hold harmless **COUNTY**, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or resulting from **CONTRACTOR'S** work or services. **CONTRACTOR'S** duty to defend, indemnify and hold harmless, **COUNTY**, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, injury to, impairment or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission of **CONTRACTOR**, anyone **CONTRACTOR** directly or indirectly employs or anyone for whose acts **CONTRACTOR** may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including **COUNTY**.

The scope of this indemnification does not extend to the sole negligence of **COUNTY**.

#### 4.1.3 **Insurance Requirements.**

**CONTRACTOR**, at **CONTRACTOR'S** own expense, shall purchase and maintain the herein stipulated minimum insurance from a company or companies duly licensed by the State of Arizona and possessing a current A.M. Best, Inc. rating of B++6. In lieu of State of Arizona licensing, the stipulated insurance may be purchased from a company or companies which are authorized to do business in the State of Arizona, provided that said insurance companies meet the approval of **COUNTY**. The form of any insurance policies and forms must be acceptable to **COUNTY**.

All insurance required herein shall be maintained in full force and effect until all work or service required to be performed under the terms of the Contract is satisfactorily completed and formally accepted. Failure to do so may, at the sole discretion of **COUNTY**, constitute a material breach of this Contract.

**CONTRACTOR'S** insurance shall be primary insurance as respects **COUNTY**, and any insurance or self-insurance maintained by **COUNTY** shall not contribute to it.

Any failure to comply with the claim reporting provisions of the insurance policies or any breach of an insurance policy warranty shall not affect coverage afforded under the insurance policies to protect **COUNTY**.

The insurance policies may provide coverage, which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to **COUNTY** under such policies. **CONTRACTOR** shall be solely responsible for the deductible and/or self-insured retention and **COUNTY**,

at its option, may require **CONTRACTOR** to secure payment of such deductibles or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

**COUNTY** reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. **COUNTY** shall not be obligated, however, to review such policies and/or endorsements or to advise **CONTRACTOR** of any deficiencies in such policies and endorsements, and such receipt shall not relieve **CONTRACTOR** from, or be deemed a waiver of **COUNTY'S** right to insist on strict fulfillment of **CONTRACTOR'S** obligations under this Contract.

The insurance policies required by this Contract, except Workers' Compensation, shall name **COUNTY**, its agents, representatives, officers, directors, officials and employees as Additional Insureds.

The policies required hereunder, except Workers' Compensation, shall contain a waiver of transfer of rights of recovery (subrogation) against **COUNTY**, its agents, representatives, officers, directors, officials and employees for any claims arising out of **CONTRACTOR'S** work or service.

4.1.3.1 Commercial General Liability. **CONTRACTOR** shall maintain Commercial General Liability Insurance (CGL) and, if necessary, Commercial Umbrella Insurance with a limit of not less than \$1,000,000 for each occurrence with a \$2,000,000 Products/Completed Operations Aggregate and a \$2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00 01 10 93 or any replacements thereof. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.

The policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, or any provision which would serve to limit third party action over claims.

The CGL and the commercial umbrella coverage, if any, additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s Additional Insured, Form CG 20 10 10 01, and shall include coverage for **CONTRACTOR'S** operations and products.

4.1.3.2 Automobile Liability. **CONTRACTOR** shall maintain Automobile Liability Insurance and, if necessary, Commercial Umbrella Insurance with a combined single limit for bodily injury and property damage of no less than \$1,000,000, each occurrence, with respect to **CONTRACTOR'S** vehicles (including owned, hired, non-owned), assigned to or used in the performance of this Contract. If hazardous substances, materials, or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.

4.1.3.3 Workers' Compensation. **CONTRACTOR** shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of **CONTRACTOR'S** employees engaged in the performance of the work or services, as well as Employer's Liability insurance of not less than \$100,000 for each accident, \$100,000 disease for each employee, and \$500,000 disease policy limit.

**CONTRACTOR** waives all rights against **COUNTY** and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the Workers' Compensation and Employer's Liability or commercial umbrella liability insurance obtained by **CONTRACTOR** pursuant to this agreement.

In case any work is subcontracted, **CONTRACTOR** will require the Subcontractor to provide Workers' Compensation and Employer's Liability insurance to at least the same extent as required of **CONTRACTOR**.

4.1.4 Certificates of Insurance.

4.1.4.1 Prior to commencing work or services under this Contract, Contractor shall furnish the County with certificates of insurance, or formal endorsements as required by the Contract in the form provided by the County, issued by Contractor's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Contract are in full force and effect. Such certificates shall identify this contract number and title.

In the event any insurance policy(ies) required by this contract is(are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of **CONTRACTOR'S** work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the Contract, a renewal certificate must be sent to **COUNTY** fifteen (15) days prior to the expiration date.

4.1.4.2 Cancellation and Expiration Notice.

Insurance required herein shall not be permitted to expire, be canceled, or materially changed without thirty (30) days prior written notice to the County.

4.2 PROCUREMENT CARD ORDERING CAPABILITY:

It is the intent of Maricopa County to utilize the Bank of America MasterCard Procurement Card, or other procurement card that may be used by the County from time to time, to place and make payment for orders under the Contract.

4.3 INTERNET ORDERING CAPABILITY:

It is the intent of Maricopa County at its option to utilize the Internet to place orders under this Contract.

4.4 NOTICES:

All notices given pursuant to the terms of this Contract shall be addressed to:

For County:

Maricopa County  
Department of Materials Management  
Attn: Director of Purchasing  
320 West Lincoln Street  
Phoenix, Arizona

For Contractor:

WESTON SOLUTIONS, INC.  
950 West Elliot Road  
Suite 110  
Tempe, AZ 85284

**4.5 REQUIREMENTS CONTRACT:**

Contractor signifies its understanding and agreement by signing this document, that this Contract is a requirements contract. This Contract does not guarantee any purchases will be made. Orders will only be placed when County identifies a need and issues a purchase order.

Contractor shall take no action under this Contract unless specifically requested by County, which shall submit a written purchase order to Contractor requesting that work be performed or product be delivered.

County reserves the right to cancel purchase orders within a reasonable period of time after issuance. Should a purchase order be canceled, the County agrees to reimburse the Contractor for actual and documented costs incurred by the Contractor pursuant to the purchase order. The County will not reimburse the Contractor for any costs incurred after receipt of cancellation, or for lost profits, or shipment of product or performance of services prior to issuance of a purchase order.

Contractor agrees to accept verbal cancellation of purchase orders.

**4.6 TERMINATION:**

County may unconditionally terminate this Contract for convenience by providing thirty (30) calendar days advance notice to the Contractor.

County may terminate this Contract if Contractor fails to pay any charge when due or fails to perform or observe any other material term or condition of the Contract, and such failure continues for more than ten (10) days after receipt of written notice of such failure from County, or if Contractor becomes insolvent or generally fails to pay its debts as they mature.

**4.7 STATUTORY RIGHT OF CANCELLATION FOR CONFLICT OF INTEREST:**

Notice is given that pursuant to A.R.S. § 38-511 the County may cancel this Contract without penalty or further obligation within three years after execution of the contract, if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the County is at any time while the Contract or any extension of the Contract is in effect, an employee or agent of any other party to the Contract in any capacity or consultant to any other party of the Contract with respect to the subject matter of the Contract. Additionally, pursuant to A.R.S § 38-511 the County may recoup any fee or commission paid or due to any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the County from any other party to the contract arising as the result of the Contract.

**4.8 OFFSET FOR DAMAGES;**

In addition to all other remedies at law or equity, the County may offset from any money due to the Contractor any amounts Contractor owes to the County for damages resulting from breach or deficiencies in performance under this contract.

**4.9 ADDITIONS/DELETIONS OF SERVICE:**

The County reserves the right to add and/or delete products and/or services provided under this Contract. If a requirement is deleted, payment to the Contractor will be reduced proportionately to the amount of service reduced in accordance with the proposal price. If additional services and/or products are required from this Contract, prices for such additions will be negotiated between the Contractor and the County.

**4.10 SUBCONTRACTING:**

The Contractor may not assign this Contract or subcontract to another party for performance of the terms and conditions hereof without the written consent of the County, which shall not be unreasonably withheld. All correspondence authorizing subcontracting must reference the Proposal Serial Number and identify the job project.

**4.11 AMENDMENTS:**

All amendments to this Contract must be in writing and signed by both parties.

**4.12 RETENTION OF RECORDS:**

The Contractor agrees to retain all financial books, records, and other documents relevant to this Contract for five (5) years after final payment or until after the resolution of any audit questions which could be more than five (5) years, whichever is longer. The County, Federal or State auditors and any other persons duly authorized by the Department shall have full access to, and the right to examine, copy and make use of, any and all said materials.

If the Contractor's books, records and other documents relevant to this Contract are not sufficient to support and document that requested services were provided, the Contractor shall reimburse Maricopa County for the services not so adequately supported and documented.

**4.13 AUDIT DISALLOWANCES:**

If at any time County determines that a cost for which payment has been made is a disallowed cost, such as overpayment, County shall notify the Contractor in writing of the disallowance. County shall also state the means of correction, which may be but shall not be limited to adjustment of any future claim submitted by the Contractor by the amount of the disallowance, or to require repayment of the disallowed amount by the Contractor.

**4.14 VALIDITY:**

The invalidity, in whole or in part, of any provision of the Contract shall not void or affect the validity of any other provision of this Contract.

**4.15 RIGHTS IN DATA:**

The County shall have the use of data and reports resulting from this Contract without additional cost or other restriction except as provided by law. Each party shall supply to the other party, upon request, any available information that is relevant to this Contract and to the performance hereunder.

**4.16 INTEGRATION**

This Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, proposals, communications, understandings, representations, or agreements, whether oral or written, express or implied.

IN WITNESS WHEREOF, this Contract is executed on the date set forth above.

**CONTRACTOR**

\_\_\_\_\_  
AUTHORIZED SIGNATURE

\_\_\_\_\_  
PRINTED NAME AND TITLE

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
DATE

**MARICOPA COUNTY**

BY: \_\_\_\_\_  
DIRECTOR, MATERIALS MANAGEMENT

\_\_\_\_\_  
DATE

BY: \_\_\_\_\_  
CHAIRMAN, BOARD OF SUPERVISORS

\_\_\_\_\_  
DATE

ATTESTED:

\_\_\_\_\_  
CLERK OF THE BOARD

\_\_\_\_\_  
DATE

APPROVED AS TO FORM:

\_\_\_\_\_  
MARICOPA COUNTY ATTORNEY

\_\_\_\_\_  
DATE

**EXHIBIT A**

SERIAL 03157-RFP

PRICING SHEET P089502/B0603498/NIGP 92165

BIDDER NAME:	<u>Weston Solutions, Inc.</u>
F.I.D./VENDOR #:	<u>23-1501990</u>
BIDDER ADDRESS:	<u>950 West Elliot Road Suite 110, Tempe, AZ 85284</u>
P.O. ADDRESS:	<u></u>
BIDDER PHONE #:	<u>480 477 4900</u>
BIDDER FAX #:	<u>480 477 4901</u>
COMPANY WEB SITE:	<u><a href="http://www.westonsolutions.com">www.westonsolutions.com</a></u>
COMPANY CONTACT (REP):	<u>Todd Mehall</u>
E-MAIL ADDRESS (REP):	<u><a href="mailto:todd.mehall@westonsolutions.com">todd.mehall@westonsolutions.com</a></u>

WILLING TO ACCEPT FUTURE SOLICITATIONS VIA EMAIL:  X  YES   NO

OTHER GOV'T. AGENCIES MAY USE THIS CONTRACT:   YES   NO

**PAYMENT TERMS: BIDDER IS REQUIRED TO PICK ONE OF THE FOLLOWING.**

**TERMS WILL BE CONSIDERED IN DETERMINING LOW BID.**

**FAILURE TO CHOOSE A TERM WILL RESULT IN A DEFAULT TO NET 30.**

**BIDDER MUST INITIAL THE SELECTION BELOW.**

NET 10	<u></u>
NET 15	<u></u>
NET 20	<u></u>
NET 30	<u> X </u>
NET 45	<u></u>
NET 60	<u></u>
NET 90	<u></u>
2% 10 DAYS NET 30	<u></u>
1% 10 DAYS NET 30	<u></u>
2% 30 DAYS NET 31	<u></u>
1% 30 DAYS NET 31	<u></u>
5% 30 DAYS NET 31	<u></u>

## **PRICING:**

### **ITEM DESCRIPTION**

#### **1.0 NTE PROJECT COST**

1.1 Items 2.4.1 through 2.4.10	<u>\$278,700</u>
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#### **2.0 CONSULTING STAFF**

2.1 Project Manager	<u>\$115/HOUR</u>
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2.2 Senior Environmental Engineer	<u>\$145/HOUR</u>
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2.3 Environmental Engineer	<u>\$100/HOUR</u>
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2.4 Analytical Chemist	<u>\$75/HOUR</u>
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2.5 Air Quality Technician	<u>\$75/HOUR</u>
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2.6 Clerical	<u>\$40/HOUR</u>
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#### **3.0 TRAVEL EXPENSES**

Travel expenses will be in accordance with the County's travel policy and must be authorized in advance by Maricopa County.

#### **4.0 OTHER EXPENSES**

Report production, duplication, and other miscellaneous expenses will be reimbursed at cost and must be approved in advance by Maricopa County.

## EXHIBIT B

### SCOPE OF WORK

#### 1.0 METHOD OF APPROACH

##### 1.1 Selection of Sampling Sites

WESTON will work with Maricopa County and the existing neighborhood groups within the study area to develop a list of potential sampling locations. Requests will be made through public notifications or hearings for volunteers willing to allow the siting of sampling equipment on their property. WESTON will negotiate with public or privately held agencies and landowners to obtain clearance and permission and set up air quality sampling sites on their property.

Potential sampling locations will be discussed with Maricopa County project personnel to refine the sampling approach and ensure that each area of concern is adequately addressed. WESTON will identify several alternative sampling locations that may be used to relocate mobile equipment during the course of the study. This will enable evaluation of conditions at more sites, if appropriate, while minimizing the overall cost of the project. As data become available, WESTON will work collaboratively with Maricopa County to revise and reassess the monitoring program with respect to the acquired data.

##### 1.2 Particulate Monitoring Equipment

For continuous, FRM-quality measurements for  $PM_{10}$  and  $PM_{2.5}$ , WESTON will use a combination of continuous monitoring and periodic sampling, using both FRM and screening instrumentation.

In areas of primary concern (near the most significant stationary or mobile particulate sources), continuous FRM  $PM_{10}$  and  $PM_{2.5}$  samplers are proposed. In areas of secondary concern (other major stationary particulate sources), integrated high volume FRM  $PM_{10}$  samplers are proposed. In other (tertiary) areas of concern, including localized roadway emissions problems, relocatable continuous screening instruments are proposed.

###### 1.2.1 Continuous FRM Monitors

The equipment selected to continuously monitor  $PM_{10}$  and  $PM_{2.5}$  at the Primary monitoring sites is the Rupprecht & Patashnick (R&P) FRM TEOM Series 1400 (TEOM) ambient particulate monitor. The monitor can be equipped with either a  $PM_{10}$  or  $PM_{2.5}$  particle size selective inlet. The instrument has been designated by the EPA as an Equivalent Method for  $PM_{10}$  (EQPM-1090-079) and an EPA-recognized correlated acceptable continuous monitor for continuous  $PM_{2.5}$  measurements. The EPA and state air quality organizations for continuous PM monitoring use the TEOM 1400 extensively.

The TEOM (tapered element oscillating microbalance) is a true gravimetric instrument that draws ambient air at a constant flow rate through a filter mounted on an oscillating pedestal. The filter is continuously weighed by measuring the changes in the oscillation frequency of the pedestal, which changes as the filter loading increases. The data from the TEOM units will be recorded by Campbell Scientific Inc. (CSI) CR510 digital data loggers, and telemetered back to WESTON via CDMA cellular modems. The loggers on-board the TEOM units will act as backup to the CSI loggers.

###### 1.2.2 Continuous Screening Monitors

The continuous PM screening instruments proposed for the mobile Tertiary sampling locations program are DustScan Sentinel Aerosol Monitors, also manufactured by R&P. The DustScan Sentinel is a battery-operated survey tool that uses laser light scattering to detect airborne aerosols. The samplers draw air through the detection chamber at a fixed rate, and provide instantaneous readings of particulate concentrations. The DustScan Sentinel consists of a normally handheld DustScan Scout monitor housed in an enclosure and equipped with either  $PM_{10}$  or  $PM_{2.5}$  particle size selective inlets. Although not a reference method or equivalent, the DustScan has a lower detection limit of 0.001 milligrams per cubic meter.

The data from the DustScan Sentinel units will be recorded by CSI CR510 digital data loggers, and telemetered back to WESTON via CDMA cellular modems. The loggers on-board the Sentinel units will act as backup to the CSI loggers.

### **1.2.3 Integrated Samplers**

At Secondary PM sites, the General Metal Works (GMW) model PS-1 high volume air sampler equipped with a flow controller and a particle size selective PM<sub>10</sub> inlet will be used to collect 24-hour samples of PM<sub>10</sub>. These are the same FRM samplers used routinely by EPA and state agencies to measure compliance with the PM<sub>10</sub> Ambient Air Quality Standards. The PM<sub>10</sub> is collected on an 8-inch x 10-inch microquartz filter. The sampler flow rate is set to run at 40 actual cubic feet per minute (acfm) and held at a constant flow rate by a volumetric flow orifice for the sample period.

## **1.3 Aromatic Monitoring Equipment**

### **1.3.1 Continuous Monitor**

The continuous total PAH analyzer proposed for use at the Primary site is the photoelectric aerosol sensor (PAS) 2000CE, manufactured by EcoChem Analytics. The PAS is an instrument used for real-time measurement of total particle-bound PAH concentrations in air. This instrument works on the principle of photoionization of the PAHs using a UV excimer lamp. The PAS 2000 CE detection limit is approximately 3 nanograms per cubic meter.

### **1.3.2 Integrated Samplers**

At Secondary PM sites, the General Metal Works (GMW) model PS-1 high volume air sampler will be used to collect 24-hour samples of PAH, following EPA Method TO-13A. Method TO-13A uses the PS-1 sampler to draw air through a sampling train consisting of a 102 millimeters diameter microquartz filter first to collect the semivolatile PAH particulates and then a glass cylinder holding a 1 inch polyurethane foam (PUF) plug, 1 inch of XAD-2 adsorbent resin, and then another 1 inch PUF plug. The XAD-2 and back PUF plug ensure that PAHs stripped from the particulates on the filter and off of the front PUF plug are collected. The entire sampling train (filter, XAD-2, and PUF plugs) are extracted together and analyzed for speciated PAH compounds using gas chromatography/mass spectrometry. The samplers will be set to run at 250 liters per minute for a total volume of 360 cubic meters over the 24-hour period.

The proposed target compound list for TO-13A is shown in Table 1, along with detection limits and a comparison to PAH emissions associated with hot mix asphalt plants according to the EPA AP-42, compilation of Air Pollutant Emission Factors. Also shown are the Arizona Guideline concentrations for the various PAHs.

**Table 1. PAH Compounds of Potential Concern**

PAH Compound	Standard TO-13A Compound <sup>a,b</sup>	TO-13A Detection Limit <sup>c</sup> (µg/m <sup>3</sup> )	Potential Asphalt Plant Emission <sup>d</sup>	Bezo(a)pyrene TEF <sup>e</sup>	Arizona Ambient Air Quality Guidelines (µg/m <sup>3</sup> )		
					1-hr	24-hr	Annual
2-Methylnaphthalene	No <sup>f</sup>	0.028	Yes	0	----	----	----
Acenaphthene	Yes	0.028	Yes	0	----	----	----
Acenaphthylene	Yes	0.028	Yes	0	----	----	----
Anthracene	Yes	0.028	Yes	0	----	----	----
Benzo(a)anthracene	Yes	0.028	Yes	0.1	0.79	0.21	5.7 x 10 <sup>-4</sup>
Benzo(a)pyrene	Yes	0.028	Yes	1.0	0.79	0.21	5.7 x 10 <sup>-4</sup>
Benzo(b)fluoranthene	Yes	0.028	Yes	0.1	----	----	----
Benzo(e)pyrene	Yes	0.028	Yes	0	----	----	----
Benzo(g,h,i)perylene	Yes	0.028	Yes	0	----	----	----
Benzo(k)fluoranthene	Yes	0.028	Yes	0.1	----	----	----
Chrysene	Yes	0.028	Yes	0.01	----	----	----
Coronene	Yes	0.028	No	0	----	----	----
Dibenz(a,h)anthracene	Yes	0.028	Yes	0	----	----	----
Fluoranthene	Yes	0.028	Yes <sup>g</sup>	0	----	----	----
Fluorene	Yes	0.028	Yes	0	----	----	----
Indeno(1,2,3-cd)pyrene	Yes	0.028	Yes	0.1	----	----	----
Naphthalene	Yes	0.028	Yes <sup>g</sup>	0	630	400	----
Perylene	Yes	0.028	No	0	----	----	----
Phenanthrene	Yes	0.028	Yes <sup>g</sup>	0	----	----	----
Pyrene	Yes	0.028	Yes	0	----	----	----

**NOTES for Table 1**

<sup>a</sup> - The GC/MS method is generally applicable to the determination of PAH compounds involving three member rings or higher.

<sup>b</sup> - Source: Compendium Method TO-13A Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)

<sup>c</sup> - Based on laboratory TO-13A reporting limit of 10 g/sample and typical 24-hour air sample volume of 320 m<sup>3</sup>.

<sup>d</sup> - Source: Emission factors for Hot Mix Asphalt Plant processes tabulated in AP-42 Chapter 11.1, Tables 9-13 (December 2000).

<sup>e</sup> - TEF = Toxicity Equivalence Factor, relative to benzo(a)pyrene = 1.

<sup>f</sup> - 2-methylnaphthalene is generally the predominant PAH emission from HMA processes listed in AP-42. This compound can also be quantified by Method TO-13A.

<sup>g</sup> - Fluoranthene, naphthalene, and phenanthrene are also identified as potential emissions from diesel-fired rotary sand dryers (AP-42, Chapter 11.19.1, Table 11.19.1-2, November 1995).

#### 1.4 **Meteorological Monitoring Equipment**

The meteorological system will include wind, temperature, and barometric pressure sensors, signal cables, and a data logger. The system will be mounted on a portable 18-foot tall tripod. The meteorological sensors will be directly wired to a CSI CR510 data logger housed in a weather-tight National Electrical Manufacturers Association (NEMA) enclosure. The solid-state data logger will be contained inside a weather-tight case. The sensors and data logger will conform to the performance criteria in the EPA's "On-site Meteorological Program Guidance for Regulatory Modeling Applications".

Wind speed will be monitored with an aluminum three-cup anemometer assembly with a 0.5 miles per hour (mph) starting threshold. A wind vane aligned using a precision compass or solar-angle sighting will monitor horizontal wind direction. Barometric pressure will be measured with a solid-state electronic sensor. Ambient air temperature measurements will be made at a dual-thermistor sensor mounted in a naturally aspirated shield that reduces errors due to solar radiation. Precipitation will be measured with a 6-inch diameter tipping bucket rain gauge. In addition to these parameters, the standard deviation of the horizontal wind direction (sigma theta) will also be calculated by the CSI datalogger. Meteorological data will be recorded as 5-minute and hourly averages, and daily climatological data (maximum and minimum temperature and total precipitation) will be recorded.

#### 1.5 **Power and Site Security**

The power requirements will vary according to the instruments located at each site. The TEOM, PAS 2000 CE, and PS-1 samplers will require 20 amp, 110 volt AC power service. The meteorological station and portable DustScan stations will run on 12 volt DC battery power supported by AC-power rechargers. It is assumed that power will be available from existing outdoor outlets at the sampling locations. Arrangements will be made with property owners to reimburse them for the electric consumption of the stations.

The tripod-mounted meteorological station and portable PM stations will have minimal site disruption, due to their small footpads. The PS-1 samplers will be mounted on wooden pallets for stability. The TEOM units will also be mounted on wooden pallets.

Site security needs will be determined on a case-by-case basis. In some residential areas, no additional security may be required beyond anchoring the equipment into the ground. If security is a concern, temporary chain link fencing can be erected.

#### 1.6 **Mobilization, Operations, Maintenance and Demobilization**

##### 1.6.1 **Mobilization**

WESTON will begin onsite mobilization of equipment within 6 weeks of the contract award. Tasks will include purchases and renting necessary equipment for the air quality network, siting locations and obtaining permissions from residences, and setup of technologies (TeamLink<sup>SM</sup>, EnviroData<sup>®</sup>, and MonitorFast<sup>SM</sup>). A survey will be distributed to residences in the area of sample locations to obtain permissions to site the air network equipment on their property. A description of the equipment will be provided to them and include a base schedule for sampling. After access agreements are in place WESTON will begin to place equipment in the field. It is estimated that the onsite setup, startup testing, and calibration will take approximately one week. The air sampling schedule may begin immediately afterwards.

##### 1.6.2 **Operation**

WESTON's Phoenix office staff will handle daily operation of equipment. They will be responsible for collecting and shipping samples to the laboratory for analysis as well as routine monitoring equipment maintenance. Data will be monitored on a daily basis for rapid identification of data collection and maintenance problems. Wireless telemetry will also permit transmission of alarm conditions that can be sent via e-mail or pager to notify

the operator that attention is required at a particular system. Operators will be available to respond quickly to problems that arise, typically within 24 hours, eliminating extensive data gaps.

#### **1.6.3 Preventive Maintenance**

Preventive maintenance is a combination of preventive and remedial actions taken to prevent or correct failure of the monitoring systems. Preventive maintenance for the ambient air equipment will include inspection and cleaning of the inlets and inspection and replacement of the motors and pumps. The preventive maintenance on the ambient air equipment is performed monthly.

#### **1.6.4 Demobilization**

Demobilization will begin at two weeks from the end of the program unless Maricopa County extends the planned four-month program. Equipment will be removed from all locations, which should take about one week. Residences will be notified on the original sampling schedule of the demobilization date and given a reminder within two weeks of the end of the program.

### **1.7 Electronic Data Acquisition and Management**

The primary data acquisition system for the continuous monitors and the meteorological system will be the Campbell Scientific Inc. (CSI) CR510 data logger. The data logger has inputs for 4 single-ended analog channels. Each data channel will be sampled once per second with an accuracy of  $\pm 0.1$  percent of full scale. Both 5-minute and hourly averages will be calculated. The data loggers are programmable, and additional information such as maxima, minima, and frequency histograms can be collected.

WESTON has developed an ensemble of systems for electronic data management of nearly all phases of environmental monitoring projects that will be used to manage the collection and reporting of data from this study:

- EnviroData<sup>®</sup> provides a standardized means for porting laboratory EDDs into Microsoft<sup>®</sup> Access<sup>®</sup> databases;
- MonitorFast<sup>SM</sup> provides a framework for automated data retrieval from monitoring stations to standardized SQL Server databases either periodically or in real-time;
- FieldFast<sup>SM</sup> enables direct electronic entry of field sampling data from the PAH and PM<sub>10</sub> samplers; and
- TeamLink<sup>SM</sup> provides a secure Web-based data access portal and project management tool.

#### **1.7.1 EnviroData<sup>®</sup>**

EnviroData<sup>®</sup> is an environmental data management program developed by Geotech Computer Systems (Geotech) of Englewood, Colorado. This new program facilitates the processing of current and historical analytical data collected across multiple work areas. WESTON has partnered with Geotech in an effort to make EnviroData<sup>®</sup> a corporate-wide standard.

Severn Trent Laboratories (STL), chosen by WESTON for this project, will provide analytical sampling results via EDDs compatible with EnviroData<sup>®</sup>. The EnviroData<sup>®</sup> database is a proprietary format, but can easily export results to a standardized Microsoft<sup>®</sup> Access datamart for end-users of the data. The datamarts can be accessed via TeamLink<sup>SM</sup> to provide interactive data queries, charting, and summaries.

The many benefits of EnviroData<sup>®</sup> include:

- Speeding up report production time.
- Allowing multiple users to access the data, rather than just one individual who understands the project's specific data management system.

- Reduce errors in EDD through use of a single standard for electronic data submission from laboratories.
- Increase available time to analyze data versus handling data, resulting in better decision-making and quality assurance.

#### 1.7.2 **MonitorFast<sup>SM</sup>**

WESTON's MonitorFast<sup>SM</sup> system will be used to automate data collection from the real-time monitoring network (TEOM, DustScan, and PAH monitors, as well as the meteorological station) by sending the data via a wireless phone connection to a secure Internet database. The data can then be viewed in real time over secure Web pages in tabular, graphical, and spatial formats. The MonitorFast<sup>SM</sup> system architecture consists of three tiers: field data collection, database storage, and Web-based data access and reporting.

The MonitorFast<sup>SM</sup> system uses digital data loggers and software for data collection and retrieval. These loggers were described previously and will transmit their data to WESTON via wireless modems.

WESTON developed a standard database structure that is the system's foundation for maximizing efficient transfer and management of data. For example, the database uses stored procedures to send e-mail notifications when incoming data trigger alarm conditions, and to warn when data are not received on schedule. Because monitoring data are stored in standardized databases, information retrieval and editing processes are very efficient. Data reside on a secure server that is backed up daily and stored off-site. Through WESTON's TeamLink<sup>SM</sup> system, data can be manipulated and viewed in real time in tabular, graphical, or spatial formats.

#### 1.7.3 **FieldFast<sup>SM</sup>**

WESTON has developed FieldFast<sup>SM</sup>, a software program for tracking samples and data, electronically generating chain-of-custodies (COC) and sample labels, data reports, and capturing sample attributes and field parameters. FieldFast<sup>SM</sup> operates in tandem with personal computers (generating labels and COCs, and managing the database) and PDAs (for collecting data in the field) using pocket personal computer devices. FieldFast<sup>SM</sup> eliminates most typographical errors in the field and ensures that laboratories and engineering staff can clearly read paperwork and data. Additional data such as field measurements can be exported from FieldFast<sup>SM</sup> to various environmental data management systems (EDMS), including Geographical Information Systems (GIS), Microsoft® Access® and Excel®, and more.

FieldFast<sup>SM</sup> software consists of two components: the FieldFast<sup>SM</sup> user interface and a Microsoft® Access database. The user interface contains the forms that a user needs to create data reports and record field measurements. Whenever information is updated in the user interface, data are passed into the database where the data are stored.

#### 1.7.4 **TeamLink<sup>SM</sup>**

TeamLink<sup>SM</sup> is WESTON's Web-based collaborative workspace that is accessible from a computer with Internet access, a Web browser, and a user account. Project data can be viewed from office or home 24 hours a day. Through the TeamLink<sup>SM</sup> application, data can be manipulated and viewed in real time in tabular, graphical, or spatial formats enabling easier reporting of data. TeamLink<sup>SM</sup> charts and data can be imported into other programs such as Microsoft® Excel, Word, and PowerPoint.

Data are secured by Secured Socket Layer (SSL) encryption technology and by individual member IDs and passwords, making the site as secure as an online banking account. TeamLink<sup>SM</sup> will be used to:

- Organize, store, and review electronic files, including documents, photos and video, maps, and data.
- View and query data in tabular and spatial formats.
- Manage project schedules, contractor invoices, resource management, and commitment tracking/scheduling.
- Submit and receive reports and invoices from subcontractors (if requested).

TeamLink<sup>SM</sup>'s Filing Cabinet provides a project-specific organizational structure for easier management of project documents and includes the following features:

- Multiple Security Levels—Various levels of security control which team, subgroup, or user can view which information.
- Document Response/Review Capabilities—Each document's complete lifecycle can be managed by posting responses/reviews to documents in a threaded hierarchy structure.

## 1.8 **Quality Assurance and Quality Control**

Quality Assurance (QA) includes the planned and systematic actions necessary to provide adequate confidence that a measurement of process will satisfy a given requirement for accuracy. Quality Control (QC) is the operational techniques and activities that are used to fulfill requirements for quality. The QC procedures for the ambient air monitoring component of the program include planned calibrations, audits, preventive maintenance, collocated sampling to evaluate precision and accuracy, and analysis of QC samples (field/trip blanks). Procedures are described in the following subsections.

### 1.8.1 **Independent Audit**

An independent audit will be conducted on the air sampling and meteorological monitoring equipment after the startup of the program. The auditor will be an outside independent contractor experienced in the proposed monitoring system. WESTON has chosen UAI Incorporated to conduct this outside audit. The audit program will follow EPA guidelines. The auditor will use the specific methods and auditing techniques described in the EPA's "Quality Assurance Handbook for Air Pollution Measurement Systems, Volumes II and IV" and the "On-Site Meteorological Program Guidance for Regulatory Modeling Applications".

The audit of the ambient monitoring program will include a system audit as well as a performance audit at each monitoring site. The system audit will assess the record-keeping and daily operating practices of the monitoring program to ensure that proper calibration, precision and accuracy checks, and maintenance are being performed. The performance audit will challenge the monitoring equipment with known values or compare sensor responses with values from sensors with a known accuracy. The high volume sampling equipment will be checked for proper flow rates and the other ambient air quality equipment will be audited with gases of known concentration. The continuous TEOM sampler flow will be checked using a dry calibration primary standard. The meteorological sensors will be checked for proper response to known conditions. All audit equipment will be traceable to NIST standards when possible.

All data packages received from the analytical laboratory will be EPA Level IV deliverables suitable for data validation. These data packages will be available to Maricopa County personnel for review as well as to the independent auditor.

**1.8.2 Calibration: PM<sub>10</sub> High-Volume Samplers**

The calibration of the PM<sub>10</sub> samplers is a single point calibration of the volumetric flow controller on the PM<sub>10</sub> sampler. The calibration is performed to confirm the sampler is set to the actual airflow rate of 40 acfm. An adapter plate, National Institute for Standards and Technology (NIST) -traceable orifice calibration unit, and a manometer are used to measure the pressure drop in inches of water across the calibration orifice. The pressure drop for a calibration orifice corresponds to a specific flow rate. The calibration results are used to determine the flow rate of the PM<sub>10</sub> sample. Calibration of the sampler will be performed at the start-up of program, and at quarterly intervals throughout the program.

**1.8.3 Calibration PUF High-Volume Samplers**

The calibration of the PUF samplers is a multi-point calibration of the flow indicator on the PUF sampler. A multi-point calibration is performed because the sampler is not equipped with a mass or volumetric flow controller. The calibration is performed at several flow rates to determine the actual airflow rates corresponding to readings on the flow indicator device (magnetic gauge) attached to the sampler venturi. An adapter plate, NIST-traceable orifice calibration unit, and a manometer are used to measure the pressure drop in inches of water across the calibration orifice. The pressure drop for a calibration orifice corresponds to a specific flow rate. The calibration results are used to determine the flow rate of the PUF sample. Calibration of the sampler will be performed at each PUF sampling event.

**1.8.4 Precision and Accuracy**

Precision and accuracy checks are both elements of QA. Precision checks are a measure of agreement among individual measurements of the same parameter, usually under prescribed similar conditions. Accuracy is the degree of agreement between an accepted reference measurement and the field measurement. Accuracy may be expressed as a total difference, or as a percentage of the reference value, or as a ratio. Precision checks are performed as collocated measurements. Due to the limited number of samples specified, collocated samples will not be collected.

Accuracy checks of the PM<sub>10</sub> samplers are limited to verifying the flow rates of the samplers because it is difficult to introduce a known concentration of contaminant in air to the samplers. Therefore, the accuracy checks are performed as part of the calibrations/audits of the sampler flow rates.

**1.8.5 QC Samples**

QC field blank samples will be collected to check for possible contamination introduced by field sampling procedures, sampling media, sampling equipment, or shipment of the samples. Field blanks are handled in the same manner as actual samples, undergoing the same preparation, installation in the sampler module, and cleanup procedures.

One field blank for each pollutant type will be collected. Each field blank will be shipped to the field, prepared and handled as the other samples, and returned to the laboratory without drawing air through the sampler. Blanks will be collected at a frequency of 10 percent of samples spread uniformly throughout the sampling program.

**1.8.6 Performance and System Audits of the Meteorological Station**

QA audits for the meteorological measurements system will be performed before start-up of the program in accordance with the procedures described in the "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV Meteorological Measurements."

The audit of the meteorological station will include a performance audit on the entire meteorological monitoring system including sensors and data logger. A WESTON staff

member who is not routinely involved with the daily operation of the monitoring system will perform both the performance and system audits. Wind speed, wind direction, barometric pressure and ambient temperature will be audited. Performance audits will provide an indication of instrument accuracy. Performance audits will be conducted using an artificial field and/or a collocated NIST-traceable sensor to check the sensor operation. A percent difference between the known and observed values will be calculated based upon the results of the audited sensors. For some sensor characteristics, such as starting threshold speed for a wind speed sensor, the results of the audit will only reveal if the sensor is operating within EPA specifications.

#### 1.9 **Schedule**

The proposed schedule for completion of the Scope-of-Work for this project is shown in Table 2.

**Table 2. Proposed Schedule**

<b>TASK</b>	<b>SCHEDULE</b>
Kick-off Meeting, Work Plan, Site Scoping	Within two weeks of receipt of written authorization from Maricopa County.
Onsite Setup	Within four weeks of kickoff meeting.
Start of Operations & Monthly Conference Calls	Immediately following setup. Monthly throughout length of project (expect 6-8 conference calls lasting 1 hour each).
Draft and Final Report	Draft report within four weeks of end of program. Final report within two weeks of receiving comments from the County.
Independent Audit	Midpoint of program.

#### 1.10 **Reporting**

Samples will be shipped overnight to the laboratory the day after the sample period. The samples are to be analyzed on standard turn-around-time (TAT) of two weeks. Data is uploaded from the laboratory's server to the EnviroData<sup>®</sup> database. PM<sub>10</sub> and PAH data collected are loaded to the EnviroData<sup>®</sup> database on WESTON's server within 48 hours of laboratory receipt. The data can be viewed from the project Teamlink<sup>SM</sup> Web pages along with preset air quality standards or alarms levels.

For continuous monitors and the meteorological station, the data loggers will record data at 5-minute and 60-minute intervals. The data will be downloaded from the loggers to the MonitorFast<sup>SM</sup> databases on a minimum of once daily, and reviewed by WESTON Project Scientists. The frequency of data retrieval can be increased in MonitorFast<sup>SM</sup> to obtain access to results in near-real time.

A data analysis report will be submitted to Maricopa County at the end of the program. Data will be stored in a central database in a standard format. The data analysis will review the meteorological, PM, and PAH data. The air quality data will be compared to any applicable county, state, or federal guidelines for ambient air. Appendix A contains an example of a WESTON ambient sampling report.

## 1.11 Electronic Communication Equipment and Software

As previously described, communications with the CSI data loggers will be via cellular CDMA modems at each station. The loggers will be polled automatically from WESTON's West Chester, PA office by CSI's LoggerNet software, and the retrieved data will be automatically uploaded immediately after receipt by the MonitorFast<sup>SM</sup> upload software. From the MonitorFast<sup>SM</sup> database, all monitoring data are available via interactive TeamLink<sup>SM</sup> web pages built using Active Server Pages. Data can be downloaded by TeamLink<sup>SM</sup> users directly to Microsoft<sup>®</sup> Excel<sup>®</sup> or Access<sup>®</sup>.

WESTON's corporate standard software platform is Windows<sup>®</sup> 2000, and Microsoft<sup>®</sup> Office XP Professional<sup>®</sup>. In addition to Microsoft<sup>®</sup> Access<sup>®</sup>, WESTON uses Microsoft<sup>®</sup> SQL Server 2000<sup>®</sup> databases for many Internet applications. WESTON also has GIS data display and analysis capabilities using MapInfo, along with ESRI's ArcView, and ArcIMS packages. Reports generated by WESTON are made available via hard copy and/or in electronic form in Adobe's<sup>®</sup> Portable Document Format (PDF).

## 1.12 Sampling Locations and Rationale

### 1.12.1 Rationale

The proposed sampling locations were determined based on several factors:

- Geographical distribution of the SGM facilities in the study area,
- Nature of the emissions sources at the facilities,
- Prevailing wind patterns, and
- Nature of the complaints.

The proposed placement of the monitoring sites was driven primarily by the objective of attempting to capture peak ambient air impacts from the SGM facilities in and near the study area. Since the facilities are located near residential developments, the pattern of complaints from residents adjacent to the facilities is not surprising. Given the nature of complained impacts (e.g., rashes), it is a possibility that the National Ambient Air Quality Standards (NAAQS) and/or County or State air toxics guidelines are being exceeded. Even if health-based air quality standards are not being exceeded, the PM problems may indicate that the facilities are not employing proper engineering controls as outlined in Maricopa County Rules 310 and 310.01 regarding control of fugitive dust. This is especially true of the complaints of fugitive road dust. Since there are complaints associated with all of the subject facilities, sites were distributed to provide coverage of each site by at least one monitor.

WESTON proposes that the Primary PM and PAH monitors be deployed in residential areas near the facilities. Although the ambient air impacts from facilities may extend over a large area, the maximum impacts that would be most likely to generate complaints and potential exceedance of the NAAQS or air toxics guidelines will occur in the regions immediately adjacent to the facilities. This is primarily due to the fact that most of the emission sources on the SGM facilities are on or near ground level, with little or no buoyant or momentum plume rise. WESTON has observed this pattern historically at sites when performing dispersion modeling analysis for fugitive PM sources for similar facilities. For this reason, WESTON does not propose to conduct a modeling study as a part of this short-duration study. After the four months of data are collected, patterns may emerge that could be studied further by forensic dispersion modeling using the meteorological data collected during the study.

Four continuous FRM PM (two each TEOM PM<sub>10</sub> and TEOM PM<sub>2.5</sub>) and the continuous PAH monitor are proposed to be located at three Primary sites, as described in Section 4.12.2. One Primary PM station and the Primary PAH station are proposed to be located downwind (to the northeast) of the main operations area of the Vulcan Materials facility.

Vulcan has the largest inventoried emissions of the area SGM facilities, and also the only asphalt plant. The other Primary PM station is proposed to be located northeast of the geographically clustered Maricopa Ready Mix, Sun State Rock & Materials, and Hanson Aggregates facilities. Maricopa and Sun State have the 2<sup>nd</sup> and 4<sup>th</sup> highest PM<sub>10</sub> emissions. Hanson is not a large source, but coincidentally is located in the same area.

WESTON proposes placing Secondary PM<sub>10</sub> and PAH monitoring stations near the major facilities and as background sites. The Secondary PM<sub>10</sub> stations would rely on 24-hour integrated FRM PM<sub>10</sub> samplers, augmented by continuous screening PM<sub>10</sub> monitors. This combination will still provide FRM-quality data, along with collocated time-resolved PM<sub>10</sub> data. This will not only enable interpretation of the 24-hour samples (e.g., was a high result caused by several hours of moderately elevated impacts, or only a few hours of greatly elevated impacts), but will provide a means to correlate the screening instruments with the FRM instruments for the NAAQS 24-hour averaging period. One Secondary PM<sub>10</sub> station would be located southwest of the Maricopa and Sun State facilities. The Secondary PAH location and the other Secondary PM<sub>10</sub> location would be collocated in the residential area south-southeast of Vulcan on the west side of the Agua Fria riverbed. Since this location is not climatologically downwind or near a facility, WESTON considers it to be a representative background location.

WESTON has chosen to include a background location, even though the stated purpose of the study does not involve “fingerprinting” the SGM facilities, which would be the typical function of a background station. However, having a source of background data is still important when considering trace pollutants such as PAHs. This is important for three reasons. First, the TO-13A method can detect quantities of PAHs well below their odor thresholds (odor is a principal reason for focusing on the asphalt plant). Second, there are other significant regional sources of PAHs, most notably diesel-fueled machinery and vehicles that share a similar profile of PAH compound emissions. Third, the source strength of the asphalt plant may be less than that of the local mobile sources. These factors make it essential to understand the background PAH levels. It is even possible that some elevated 24-hour PM<sub>10</sub> observations may occur due to unusual regional-scale background, such as widespread PM storms or wildfires.

Because some of the complaints (particularly those related to vehicular traffic) indicate high-intensity, short duration impacts, WESTON believes that FRM-quality sampling is not necessary to determine if excessive impacts are occurring at these locations. Continuous monitoring using screening-level monitors should be sufficient to document these highly localized incidents. Therefore, WESTON proposes to use mobile (relocatable) continuous PM<sub>10</sub> monitors to assess areas where these problems have been reported. The mobile monitors would also be used to provide coverage of the other two major facilities. The duration that the mobile PM monitors will be stationed at a given location will be determined by regular consultations with Maricopa County. Two mobile PM<sub>10</sub> stations are proposed. The initial locations proposed are northeast of the Cemex facility, and northeast of the uninventoried SGM facility at the southern border of the study area.

#### 1.12.2 **Station Equipment Configuration**

The air quality network will consist of eight sampling locations; two primary PM stations, two secondary PM stations, one primary PAH station, one secondary PAH station, and two mobile PM stations. There will be one weather station to collect meteorological data.

Each primary PM station will site the following equipment:

- 1 R&P FRM TEOM real-time PM<sub>10</sub> monitor,
- 1 R&P FRM TEOM real-time PM<sub>2.5</sub> monitor,
- 2 Temperature-conditioned shelter boxes [4 ft x 4 ft x 2 ft],
- 1 CSI CR510 data logger,

- 1 CSI CDMA cellular modem,
- Remote controlled web cam (*Optional*).

Each secondary PM station will site the following equipment:

- 1 R&P DustScan real-time aerosol PM10 monitor,
- 1 NEMA enclosure on a 8-foot tripod,
- 1 CSI CR510 data logger,
- 1 CSI CDMA cellular modem,
- 1 GMW FRM PM10 high volume sampler.

The primary PAH station will consist of the following equipment:

- 1 EcoChem PAS 1000 real-time PAH monitor,
- 1 Temperature-conditioned shelter box [4 ft x 4 ft x 2 ft],
- 1 GMW FRM PAH PS-1 PUF sampler,
- 1 CSI CR510 datalogger,
- 1 CSI CDMA cellular modem.

The secondary PAH station will consist of the following equipment:

- 1 GMW FRM PAH PS-1 PUF sampler.

Each mobile PM station will consist of the following equipment:

- 1 R&P DustScan real-time aerosol PM10 monitor,
- 1 NEMA enclosure on a 8-foot tripod,
- 1 CSI CR510 datalogger,
- 1 CSI CDMA cellular modem.

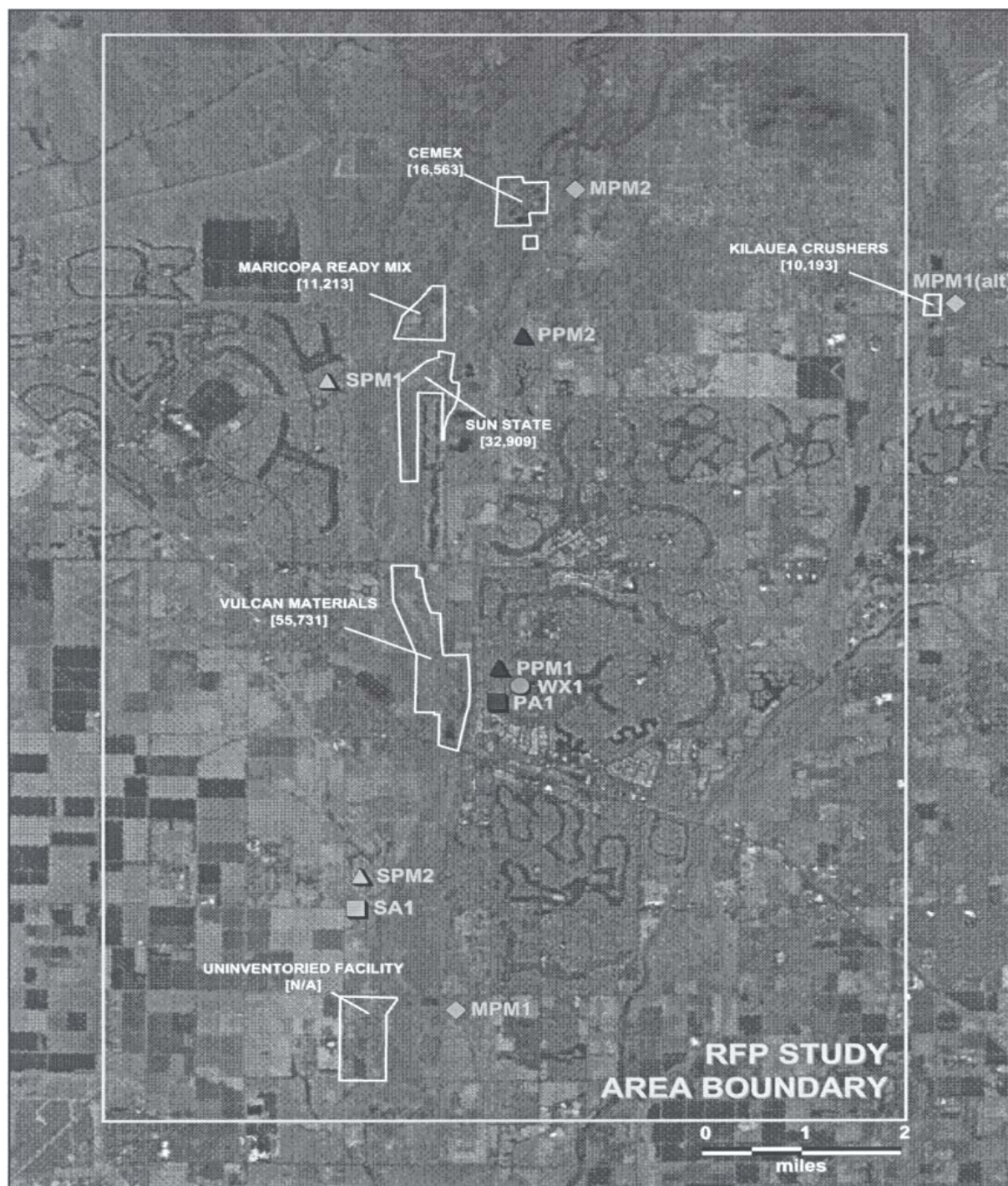
### 1.12.3 **Sample Locations**

The proposed general areas for the monitoring station locations are shown in Figure 1. Also shown on Figure 1 are the approximate outlines of the principal sand and gravel processing operations affecting the study area. The facility outlines were based on examination of United States Geological Survey (USGS) 7.5-minute Digital Orthophoto Quadrangles (DOQs) with 1 meter per pixel resolution and facility property boundaries obtained from Maricopa County or permit information. The purposes for each monitoring station are summarized in Table 3.

The meteorological station was centrally located relative to the sources and the riverbed. Because the riverbed has a gentle slope, and there are not significant topographic features near the study area, WESTON believes that only a single meteorological station will provide data representative of conditions in the study area. The primary use of the meteorological data collected by the station will be to define upwind and downwind periods for all monitors. Secondly, the meteorological data will be of sufficient quality to allow dispersion modeling to be performed to examine observed facility impacts in more detail.

**Table 3. Monitoring Station Roles**

Station Name	Map Name	Monitoring Role
Primary PAH	PP	Vulcan Asphalt Plant impacts
Secondary PAH	SP	Background
Primary PM No. 1	PPM1	Vulcan impacts
Primary PM No. 2	PPM2	Maricopa & Sun State impacts
Secondary PM No. 1	SPM1	Maricopa & Sun State impacts
Secondary PM No. 2	SPM2	Background
Mobile PM No. 1	MPM1	Cemex impacts
Mobile PM No. 2	MPM2	Kilauea / Un-inventoried Facility impacts
Meteorological Station	WX	Meteorological data



# LEGEND

- |                                     |                          |
|-------------------------------------|--------------------------|
| ▲ Primary PM Secondary PM Mobile PM | ■ Primary PAH            |
| ▲ Secondary PAH                     | ■ Secondary PAH          |
| ◆ Mobile PM                         | ● Meteorological Station |

## FIGURE 1

Proposed Ambient Air  
Sampling and Monitoring Sites  
Agua Fria River Basin  
Maricopa County, Arizona

1.12.4 **Site Scoping and Surveying**

Sampling locations have been sited in general areas of concern. More specific locations will be selected after scoping and survey of the adjacent neighborhoods by WESTON and Maricopa County, once candidate locations are determined from the public meetings and/or neighborhood surveys.

1.12.5 **Sample Frequency**

Twenty-four-hour integrated air samples will be collected for PAH compounds at the primary and secondary PAH sample locations every three days. Twenty-four-hour integrated air samples will be collected at the secondary PM sample location every three days. Samplers will run from midnight to midnight on seven-day mechanical timers. The sample media are loaded the day before a sample event and collected the day after.

1.13 **Project Management**

This section describes WESTON's project management procedures for the project. In addition to attending the kickoff meeting, monthly conference calls and managing staff, this section describes the tools available to WESTON project managers that enable them to complete a project on time and within budget.

1.13.1 **Kickoff Meeting**

The Project Manager or Task Leader will be available for a kickoff meeting to be held in Phoenix, Arizona. We anticipate that this meeting will be scheduled shortly after the project begins and will serve to cover any issues relative to the project.

1.13.2 **Monthly Conference Calls**

WESTON has budgeted four monthly conference calls for this project. WESTON's Project Manager and/or Task Leader will participate in these conference calls, as required. WESTON will also provide written minutes detailing the discussion topics. For budgeting purposes, WESTON has assumed the monthly conference calls will last one hour and one hour is allotted for writing meeting minutes.

1.13.3 **Project Controls**

WESTON technical management is made up of four specific project control elements:

- Administrative and technical (daily personnel) control.
- Financial (programmed) control.
- Schedule (programmed) control.
- Quality (preassigned) control.

These elements are discussed in the subsections that follow.

1.13.4 **Administrative and Technical Control**

Administrative and technical control over the execution of the project rests with the Project Manager and is exercised as appropriate to the situation and individuals involved. The Project Manager schedules regular technical reviews. In these reviews, the project participants make informal presentations. In addition to these reviews, the Project Team makes regular use of informal meetings, work memoranda, and regular information exchange to foster the effective use of the technical and administrative resources within

the company. Externally, the Project Manager maintains close contact with Maricopa County to keep them aware of project progress and to solicit feedback.

#### 1.13.5 **Financial Control**

Financial control is attained through the use of project control system (PCS). The PCS by each task/subtask of a project provides weekly summary of the expected labor hours and effort. The PCS also has a number of financial control techniques, internal reports, and review procedures to ensure early visibility and effective control of the project's financial status. This allows documentation and control of costs by activity on a subtask-by-subtask basis.

#### 1.13.6 **Schedule Control**

There are several ingredients in the makeup of a successful consulting firm that result in a consistent meeting of schedules. These same ingredients are responsible for the ability to confidently and accurately predict schedules and to complete work despite task or scope changes.

- **Personnel** — The firm's personnel must know the client's specific objectives within the project. They must be aware of potential pitfalls so as to avoid them. In short, the personnel must have done it before, not once, but a number of times. Experience in what to do, how to do it, and what to expect while doing it results in the ability to set and meet schedules. WESTON's personnel have that experience.
- **Commitment** — The selected firm must have a dedicated commitment to the client and its project. A condition of employment with the WESTON organization is a commitment to the clients' and projects' requirements.
- **Management Control** — In order to meet a schedule, the selected firm must have total control over those items within the project that are its responsibility. WESTON's experience with clients has shown that a one-firm (or dominant firm) effort having a management-oriented team that is controlled internally results in more consistent schedule compliance. The firm must have task supervisors reporting to one Project Manager. This approach results in one direct line of communication between WESTON and the client, and it precludes time loss and other inefficiencies that are incurred when there is more than one chain of responsibility. This approach also provides a single line of accountability between WESTON and the client.

#### 1.13.7 **Quality Control**

In addition to the specific quality control (QC) measures for the ambient sampling portion of this project discussed in Section 4.8, WESTON implements project management QC measures on all projects. The essence of QC is in the successful execution of project management. QC procedures are initiated prior to project startup through the development of individual QC assignments. This approach, which consists

of sound scientific practice and specific assignments, will be incorporated within all phases of the project. Normal procedural mechanisms used include the following:

**First-Level Numerical Check** — Verification of accuracy of numerical work.

**Technical Review** — Review by a designated individual (who has not been a major contributor to the project) for technical feasibility and accuracy of the work.

**Editorial Review** — Review and correction by a professional technical editor to ensure clarity, correctness in form and content, and completeness.

The QC efforts will reflect the nature of the data generation phases of the project. The QC plan will have specific components for field data, laboratory data, existing databases supplied by the client, existing data collected from outside sources, and data supplied by subcontractors. The plan will also address acquisition and analysis procedures.

#### 1.14 **Other Issues**

A possible outcome of the ambient monitoring process will be to conduct an air quality modeling analysis for the Agua Fria River Basin area incorporating the emissions from the industrial facilities. This modeling analysis can be used to determine where and if additional controls for industrial sites might be necessary. WESTON can provide air quality modeling services. Mr. Eldridge (team member) has over 20 years of air quality modeling experience. WESTON can provide a quote for conducting this analysis if requested by Maricopa County.

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